



June 15, 2015

Congressional Committees

## **Nuclear Command, Control, and Communications: Update on DOD's Modernization**

Nuclear command, control, and communications (NC3) is a large and complex system comprised of numerous land-, air-, and space-based components used to assure connectivity between the President and nuclear forces. The current NC3 architecture consists of components that support day-to-day nuclear and conventional operations prior to a nuclear event as well as those that provide survivable, secure, and enduring communications through all threat environments. Though some NC3 systems are specific to the nuclear mission, most support both nuclear and conventional missions. The Department of Defense (DOD) is executing several acquisition efforts to modernize elements of NC3.

Since 2013, GAO has released several products related to its review of NC3 as required by congressional defense committees. For example, the Senate Armed Services Committee report accompanying a bill for the National Defense Authorization Act for Fiscal Year 2013 included a provision for GAO to assess Department of Defense (DOD) efforts to sustain and improve the NC3 system.<sup>1</sup> We addressed this provision initially through a report on the Family of Advanced Beyond Line-of-Sight Terminals in December 2013, and then subsequently issued a classified report on operational assessments of NC3 in February 2014. We also provided a classified briefing to the Senate Armed Services Committee staff on the extent to which DOD is addressing known NC3 gaps or weaknesses and has taken steps to transform the current NC3 to provide improved capabilities in the future.<sup>2</sup>

This report is in response to the Senate Armed Services Committee report accompanying a bill for the Carl Levin National Defense Authorization Act for Fiscal Year 2015,<sup>3</sup> which included provisions for GAO to (1) update recent prior assessments of NC3 acquisition programs, and (2) review the U.S. Strategic Command's ongoing effort to update the Mission Planning and Analysis System with briefings to the congressional defense committees.<sup>4</sup>

To address our objectives, we focused our review on seven NC3 programs or efforts that support the full range of NC3 functions that pertain to planning, decision making, situation monitoring, force management, and force direction. Given the large number and wide range of programs that either directly or indirectly support NC3-related missions, we chose to focus on key NC3 programs or efforts that are among the largest in terms of estimated cost and/or that

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<sup>1</sup>S. Rep. No. 112-173, at 199, accompanying S. 3254, 112th Cong. (2nd Sess. 2012).

<sup>2</sup>GAO, *Nuclear Command, Control and Communications: Review of DOD's Current Modernization Efforts*, [GAO-14-414R](#) (Washington, D.C.: Mar. 18, 2014).

<sup>3</sup>S. Rep. No. 113-176, at 240, 243, accompanying S. 2410, 113th Cong. (2nd Sess. 2014).

<sup>4</sup>The Mission Planning and Analysis System supports developing nuclear and conventional force application plans.

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enable senior leader communications or other critical capabilities. Specifically, we reviewed (1) Mission Planning and Analysis System; (2) Family of Advanced Beyond Line-of-Sight Terminals; (3) Presidential and National Voice Conferencing; (4) Phoenix Air-to-Ground Communications Network; (5) Common Very Low Frequency Receiver; (6) Global Aircrew Strategic Network Terminal; and (7) the Minuteman Minimum Essential Emergency Communications Network Program Upgrade.

We provided an in-depth classified briefing to congressional defense committee staff on the results of our review in April 2015. For the seven NC3 programs or efforts under our review, we provided information on (1) the acquisition strategy for developing and fielding the programs and efforts and how they are expected to address known capability gaps or deficiencies; (2) the progress made in meeting cost, schedule, and performance goals; and (3) the risks, if any, in meeting the goals and the actions planned or being taken to mitigate those risks. In addition, we found that while the programs and efforts have made progress toward developing and fielding systems as well as meeting cost, schedule, or performance goals, known capability gaps or deficiencies remain. For example, development of key satellite communication terminals for strategic bomber aircraft has been deferred by several years. Other programs we reviewed have planned follow-on increments intended to address known capability gaps or deficiencies; however, these increments are not yet funded. Further details remain classified.

To answer our key questions for each of the NC3 programs or efforts under review, we collected and reviewed DOD and other assessments of NC3. We also conducted interviews with program officials, as well as cognizant officials from the Air Force Strategic Deterrence and Nuclear Integration Office; Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics; U.S. Strategic Command; DOD Office of the Chief Information Officer; Office of the Director, Operational Test & Evaluation; DOD Cost Assessment and Program Evaluation; Defense Information Systems Agency; Air Force Global Strike Command; and Johns Hopkins University Applied Physics Laboratory to gain information on the expected capabilities of each NC3 program or effort under our review as well as how these capabilities contributed to the critical missions served by NC3. We gathered and reviewed contractual, technical, and programmatic documentation to assess the acquisition and operational strategy for these programs or efforts. We reviewed budget and contract documentation to identify and compare expected and actual costs. We reviewed assessments of NC3 to verify potential schedule and capability risks as well as other potential issues.

We conducted this performance audit from October 2014 to June 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our objectives.

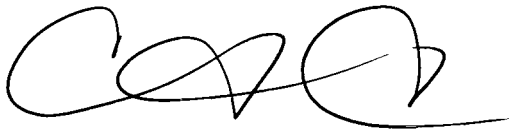
### **Agency Comments**

We provided a draft of this report to DOD for comment. The department responded that it had no formal comments.

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We are sending copies of this report to appropriate congressional committees and the Secretary of Defense. This report will be available at no charge on our website at <http://www.gao.gov>.

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A handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the end.

Cristina Chaplain  
Director, Acquisition and Sourcing Management

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